

Marked-Up Copy
Serial No: 09/623,487
Amendment Filed on: **HEREWITH**

IN THE CLAIMS

--9. (Twice Amended) An emulsion paint, comprising:

i) a polymeric binder, which comprises at least one copolymer P of ethylenically unsaturated monomers M in the form of an aqueous polymer dispersion;

ii) at least one inorganic pigment;

iii) an inorganic filler/extender; and

iv) an auxiliary;

wherein said copolymer P has a glass transition temperature T_g in the range of from -10 to +50°C; and

wherein said copolymer P [comprises] consists of the following units in polymerized form

a) 20 to 80 % by weight of at least one monomer M2a, whose homopolymer has a glass transition temperature of >30°C;

b) 20 to 79.7 % by weight of at least one monomer M2b, whose homopolymer has a glass transition temperature of <20°C;

c) 0.5 to 1.5 % by weight of c1) a first acidic monomer M1 selected from the group consisting of itaconic acid, a salt of itaconic acid, an anhydride of itaconic acid, and mixtures thereof, or

c2) mixtures of said first acidic monomer with 0 to 0.75 % by weight of a second acidic monomer selected from the group consisting of acrylic acid and methacrylic acid, provided that a total amount of said first acidic monomer and said second acidic monomer is from 0.5 to 1.5% by weight, based on a total weight of said copolymer P; and a weigh ratio of said second acidic monomer to said first acidic monomer does not exceed 1:1; and

d) 0.2 to 5% by weight of at least one monomer M3 having at least one urea group; wherein a sum of the amounts of monomers M1, M2a, M2b and M3 is 100% by weight

[a) 0.5 to 1.0% by weight of an acidic monomer M1 selected from the group consisting of itaconic acid, a salt of itaconic acid, an anhydride of itaconic acid and a combination thereof, based on a total weight of said copolymer P;

b) 90 to 99.9% by weight of monomers M2 selected from the group consisting of vinylaromatic monomers, esters of ethylenically unsaturated C₃-C₈ monocarboxylic acids with C₁-C₁₂-alkanols, and vinyl esters of aliphatic C₁-C₁₂ monocarboxylic acids, based on the total weight of said copolymer P; and

c) 0.1 to 10% by weight of at least one monomer M3 comprising an urea group, based on the total weight of said copolymer P;

wherein said copolymer P contains no polymerized acrolein;

- ii) at least one inorganic pigment
- iii) an inorganic filler/extender, and
- iv) an auxiliary].

15. (Twice Amended) The emulsion paint according to Claim 9, [wherein] with a pigment volume concentration (pvc) > 10%.

16. (Twice Amended) A method of improving the wet abrasion resistance of a polymer-bound coating composition, comprising:

mixing [the] a copolymer [according to Claim 9] as a binder with said coating composition;

wherein said copolymer consists of the following units in polymerized form

a) 20 to 80 % by weight of at least one monomer M2a, whose homopolymer has a glass transition temperature of $>30^{\circ}\text{C}$;

b) 20 to 79.7 % by weight of at least one monomer M2b, whose homopolymer has a glass transition temperature of $<20^{\circ}\text{C}$;

c) 0.5 to 1.5 % by weight of c1) a first acidic monomer M1 selected from the group consisting of itaconic acid, a salt of itaconic acid, an anhydride of itaconic acid, and mixtures thereof, or

c2) mixtures of said first acidic monomer with 0 to 0.75 % by weight of a second acidic monomer selected from the group consisting of acrylic acid and methacrylic acid, provided that a total amount of said first acidic monomer and said second acidic monomer is from 0.5 to 1.5% by weight, based on a total weight of said copolymer P; and a weight ratio of said second acidic monomer to said first acidic monomer does not exceed 1:1; and

d) 0.2 to 5% by weight of at least one monomer M3 having at least one urea group; wherein a sum of the amounts of monomers M1, M2a, M2b and M3 is 100% by weight.

18. (Amended) The emulsion paint as claimed in Claim 9, [further comprising 0 to 0.5% by weight of a monoethylenically unsaturated monocarboxylic acid selected from the group consisting of acrylic acid and methacrylic acid;

provided that] wherein said second acidic monomer is present; and
wherein a total amount of said first acidic monomer and said [monoethylenically unsaturated carboxylic acid] second acidic monomer is from 0.5 to 1.0 % by weight based on a total weight of said copolymer P; and

provided that a weight ratio of said monoethylenically unsaturated carboxylic acid to said acidic monomer does not exceed 1:1.

22. (Amended) The emulsion paint according to Claim 9, [wherein] with a pigment volume concentration (pvc) > 40%.

23. (Amended) The emulsion paint according to Claim 9, [wherein] with a pigment volume concentration (pvc) > 60%.

25. (Amended) The emulsion paint according to Claim 9, wherein a weight ratio of said [monoethylenically unsaturated carboxylic acid to said itaconic acid] second acidic monomer to said first acidic monomer does not exceed 1:2.

26. (Amended) The emulsion paint according to Claim 9, wherein a weight ratio of said [monoethylenically unsaturated carboxylic acid to said itaconic acid] second acidic monomer to said first acidic monomer does not exceed 1:3.

27. (Amended) The emulsion paint according to Claim 9, wherein a weight ratio of said [monoethylenically unsaturated carboxylic acid to said itaconic acid] second acidic monomer to said first acidic monomer does not exceed 1:9.

32. (Amended) [The emulsion paint according to Claim 9,]

An emulsion paint, comprising:

i) a polymeric binder, which comprises at least one copolymer P of ethylenically unsaturated monomers M in the form of an aqueous polymer dispersion;

ii) at least one inorganic pigment;

iii) an inorganic filler/extender; and

iv) an auxiliary;

wherein said copolymer P has a glass transition temperature T_g in the range of from -10 to +50°C; and

wherein said copolymer P [comprises] consists of the following units in copolymerized form

i) 20 to 80 % by weight of at least one monomer M2a, whose homopolymer has a glass transition temperature of $>30^{\circ}\text{C}$;

ii) 20 to 79.7 % by weight of at least one monomer M2b, whose homopolymer has a glass transition temperature of $<20^{\circ}\text{C}$;

iii) 0.5 to 1.0 % by weight of itaconic acid as monomer M1; and

iv) 0.2 to 5% by weight of at least one monomer M3 having at least one urea group;

wherein a sum of the amounts of monomers M1, M2a, M2b and M3 is 100% by weight;

wherein said copolymer P contains no polymerized acrolein.

34. (Amended) A method of improving a wet abrasion resistance of a polymer bound emulsion paint, comprising:

mixing an aqueous dispersion of a copolymer P as a binder into a latex paint which additionally comprises at least one inorganic pigment, an inorganic filler/extender and an auxiliary;

wherein said copolymer P comprises in polymerized form

a) as monomer M 1:

0.5 to 1.0% by weight of an acidic monomer selected from the group

consisting of itaconic acid, a salt of itaconic acid an anhydride of itaconic acid

and a combination thereof, and

0 to 0.5% by weight of a second monomer selected from the group consisting of acrylic acid and methacrylic acid based on a total weight of said copolymer P;

provided that a total amount of said acidic monomer and said second monomer is from 0.5 to 1.0% by weight, based on the total weight of said copolymer P, and the weight ratio of said second monomer to said acidic monomer does not exceed 1:1;

b) 90 to 99.9 % by weight of monomers M2 selected from the group consisting of vinylaromatic monomers, esters of ethylenically unsaturated C₃-C₈ monocarboxylic acids with C₁-C₁₂-alkanols, and vinyl esters of aliphatic C₁-C₁₂ monocarboxylic acids, based on a total amount of said copolymer P; and

c) [0] 0.1 to 10 % by weight of at least one monomer M3 which comprises an urea group, based on the total weight of copolymer P; and

wherein said aqueous polymer dispersion contains no polymerized acrolein;

ii) at least one inorganic pigment,

iii) an inorganic filler or an inorganic extender; and

iv) an auxiliary.

42. (Amended) An emulsion paint, comprising:

i) a polymeric binder, which comprises at least one copolymer P of ethylenically unsaturated monomers M in the form of an aqueous polymer dispersion;

wherein said copolymer P has a glass transition temperature T_g in the range of from -10 to +50°C; and

wherein said copolymer P comprises in polymerized form

a) as monomer M 1:

0.5 to 1.0% by weight of an acidic monomer selected from the group consisting of itaconic acid, a salt of itaconic acid an anhydride of itaconic acid and a combination thereof, and

0 to 0.5% by weight of a second monomer selected from the group consisting of acrylic acid and methacrylic acid based on a total weight of said copolymer P;

provided that a total amount of said acidic monomer and said second monomer is from 0.5 to 1.0% by weight, based on the total weight of said copolymer P, and the weight ratio of said second monomer to said acidic monomer does not exceed 1:1;

b) 90 to 99.9 % by weight of monomers M2 selected from the group consisting of vinylaromatic monomers, esters of ethylenically unsaturated C₃-C₈ monocarboxylic acids with C₁-C₁₂-alkanols, and vinyl esters of aliphatic C₁-C₁₂ monocarboxylic acids, based on a total amount of said copolymer P; and

c) [0] 0.1 to 10 % by weight of at least one monomer M3 which comprises an urea group, based on the total weight of copolymer P; and

wherein said aqueous polymer dispersion contains no polymerized acrolein;

ii) at least one inorganic pigment,

iii) an inorganic filler or an inorganic extender; and

iv) an auxiliary.--

Claims 43-45. (New)